

Stellar super soaker

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A star is born: Swirling gas and dust fall inward, spurring polar jets, shown in blue in this illustration. Credit: NASA/Caltech

Located in the constellation of Perseus and just a mere 750 light years from Earth, a young protostar is very busy spewing forth copious amounts of water. Embedded in a cloud of gas and dust, the hundred thousand year old infant is blasting out this elemental life ingredient from both poles like an open hydrant – and its fast moving droplets may

be seeding our Universe...

“If we picture these jets as giant hoses and the water droplets as bullets, the amount shooting out equals a hundred million times the water flowing through the Amazon River every second,” said Lars Kristensen, a postdoctoral astronomer at Leiden University in the Netherlands and lead author of the new study detailing the discovery, which has been accepted for publication in the journal *Astronomy & Astrophysics*. “We are talking about velocities reaching 200,000 kilometers [124,000 miles] per hour, which is about 80 times faster than bullets flying out of a machine gun.”

To capture the the quicksilver signature of hydrogen and oxygen atoms, the researchers employed the infrared instruments on-board the European Space Agency’s Herschel Space Observatory. Once the atoms were located, they were followed back to the star where they were formed at just a few thousand degrees Celsius. But like hitting hot black top, once the droplets encounter the outpouring of 180,000-degree-Fahrenheit (100,000-degree-Celsius) gas jets, they turn into a gaseous format. “Once the hot gases hit the much cooler surrounding material – at about 5,000 times the distance from the sun to [Earth](#) – they decelerate, creating a shock front where the gases cool down rapidly, condense, and reform as water.” Kristensen said.

Like kids of all ages playing with squirt guns, this exciting discovery would appear to be a normal part of a star “growing up” – and may very well have been part of our own Sun’s distant past. “We are only now beginning to understand that sun-like stars probably all undergo a very energetic phase when they are young,” Kristensen said. “It’s at this point in their lives when they spew out a lot of high-velocity material – part of which we now know is water.”

Just like filling summer days with fun, this “star water” may well be

enhancing the interstellar medium with life-giving fundamentals... even if that “life” is the birth of another star. The water-jet phenomenon seen in [Perseus](#) is “probably a short-lived phase all protostars go through,” Kristensen said. “But if we have enough of these sprinklers going off throughout the galaxy – this starts to become interesting on many levels.”

Skip the towel. I’ll let the Sun dry me off.

Source: [Universe Today](#)

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